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SOVIET CONFERENCE ON THE THERAPY OF TERMINAL CONDITIONS

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Work on the problem of the therapy of terminal conditions, which is based on the understanding of death from the standpoint of dialectical materialism, has enabled Soviet science to occupy the leading position in the world in research in this field.

The Academy of Medical Sciences USSR, together with the Administration of City Hospitals of the Ministry of Public Health USSR, held a conference on problems of pathophysiology and the therapy of terminal conditions at the clinic and in practical emergency aid. This conference took place in Moscow between 10 and 12 December 1952. The purpose of the conference was to summarize results of the investigation of the pathophysiology of terminal conditions, to exchange experiences in this field, and to discuss results of the therapy of severe forms of shock, extreme pain, and clinical death.

One of the tasks of the conference was the planning of measures for wider introduction into the practice of Soviet public health protection of the complex method of restoring life functions which was developed at the Laboratory of Experimental Physiology on the Resuscitation of Organisms (laboratory head, Professor V. A. Negovskiy).

The work of the conference presented a striking demonstration of the close collaboration between experimental workers and clinicists. Pathophysiologists and physiologists active in work on the problem of restoration of life functions, chief surgeons and obstetricians-gynecologists of the republics, surgeons attached to major emergency medical-aid stations, surgeons of new construction works, and practical physicians and scientific workers from Leningrad, Kiev, Ashkhabad, Yerevan, Tallin, Alma-Ata, Ryazan', Tula, and from a number of other cities in the Soviet Union took part in the conference. Visitors from scientific research institutes and therapeutic institutions in Kazan', Tashkent, Odessa, Frunze, and other cities were also present at the conference. The total attendance at the conference was 598. Among those attending, 472 represented therapeutic and scientific institutions in Moscow and 126 were from out of town.

The conference was opened by S. Ye. Severin, Active Member, Academy of Medical Sciences USSR. At five sessions of the conference, 17 reports were heard. Thirty-seven participants took part in the discussions. The results and prospective advances in research in the field of pathophysiology of terminal conditions were presented in eight theoretical papers. Nine reports were devoted to results of the application of methods for the restoration of vital functions at a number of surgical clinics, obstetric-gynecological clinics, and rayon hospitals.

The papers presented at the conference were marked by a high ideological and theoretical level and contained new and valuable scientific data.

In the theoretical part of the report given by Professor V. A. Negovskiy, the role of the central nervous system, and particularly of the cerebral cortex, in the process of dying and the restoration of vital functions of the organism was discussed. The principal stages of dying and resuscitation of the organism were characterized by Negovskiy from the standpoint of Pavlov's nervism. On the basis of experimental data, he clarified the role of neuroreflective mechanisms and of the central nervous system in the restoration of the activity of the heart, respiration, and intermediate metabolism.

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Negovskiy stressed particularly the significance of the cerebral cortex in the process of restoration of vital functions of the organism. He indicated the role of the cerebral cortex in the restoration of the entirety of the organism and of its unity with the environment, as well as in the compensation of the functions of other divisions of the central nervous system which had been disturbed during the process leading to death.

Problems subject to further experimental research in this field were enumerated. The study of the tapering off and the restoration of higher nervous activity, the search for conditions which prevent a rapid development of irreversible changes in the central nervous system, and expansion and perfection of the complex method of restoration of the vital functions of the organism belong to these problems.

E. A. Asratyan, Corresponding Member, Academy of Sciences SSSR, reported on the method of anemization of the central nervous system and presented experimental data obtained by this method in connection with an investigation of the stability of various sections of the brain to anemia. The work was carried out with G. T. Sakhiulina. After pointing out the high sensitivity of the cerebral cortex to anemia, Asratyan indicated that there is the possibility of compensation within a certain time of injuries that have occurred in the cortex as a result of anemia. In conclusion, Asratyan emphasized some possibilities of restoring the functions of the cerebral cortex after the onset of anemia by methods which had not yet been utilized.

In a report replete with new experimental data, Professor V. S. Galkin presented information on the role of vascular receptors in the organism's reactions to the introduction of various substances into the blood stream. Galkin showed that a number of substances and of liquids commonly used in medical practice may produce diametrically different effects on blood circulation and respiration, depending only on the circumstance of whether they are introduced into the venous or arterial part of the blood stream or the large or small blood-circulation cycle.

On the basis of experiments conducted in the laboratory he directed, Galkin pointed out that the protective effect of some substances depends on the functional condition of the nervous system at the time when introduction of the substance into the blood stream takes place. Ye. M. Smirenskaya, Candidate of Medical Sciences, showed in her report that the most important role in the restoration of cardiac activity after clinical death by the method of intra-arterial blood transfusion under pressure must be ascribed to nerve reflectory mechanisms. The reflectory effects on the heart take place as a result of the irritation of angioreceptors of the vascular wall.

In a report by Professor I. R. Petrov and Ye. V. Gubler, Candidate of Medical Sciences, data were presented on methods of strengthening the protective inhibition which arises in the cerebral cortex during oxygen starvation of the organism. The authors made an experimental evaluation of the effects on cortical protective inhibitions of a number of anesthetics [literally, narcotics], of hypothermia, and of mixtures of bromides with caffeine.

The regularities governing the restoration of cortical and subcortical functions at the time when patients come out of a coma or related states were explained in an extensive report made by Professor I. V. Strel'chuk.

L. V. Lebedeva presented experimental data on the basic relationships pertaining to the extinction and restoration of cardiac activity and of respiration in drowning.

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New data on changes in the intermediate metabolism of the cerebral cortex during the processes of dying and resuscitation of the organism were given in a report presented by M. A. Gayevskaya, Candidate of Biological Sciences. She demonstrated the close dependence of the carbohydrate metabolism of the brain during extinction and restoration of vital functions of the organism on the functional condition of the central nervous system.

In the clinical part of the report given by Professor Negovskiy, an analysis of extensive clinical observations made by Soviet physicians in connection with the therapy of terminal conditions was given. Negovskiy discussed in detail the complex method of the restoration of vital functions and made a number of practical indications which clarify the characteristic traits of the application of this method at the clinic and in practical emergency aid. In conclusion, Negovskiy devoted some time to the most important aspects of further development of the complex method and to the possibilities of wider introduction of this method into practical use in the future.

The informative report of Professor A. E. Gulyayev was devoted to the most important indications and contraindications for intra-arterial blood transfusion in surgical practice. Gulyayev demonstrated that intra-arterial blood transfusion plays the most important role in the system of restorative measures to be applied in cases of decompensated, acute blood loss (traumatic or surgical shock), i. e., under conditions where blood transfusion may have a negative effect.

A. N. Bakulev, Active Member, Academy of Medical Sciences USSR, told of his experience in the application of intra-arterial blood transfusion at the surgical clinic. Bakulev stated that intra-arterial blood transfusion is one of the most effective procedures for the treatment of terminal conditions which have resulted from acute trauma, asphyxiation caused by anesthesia [literally, narcosis], and other causes. Intra-arterial blood transfusion under pressure is very simple and available to every physician.

Results of the therapy of terminal conditions at the Surgical Clinic of the Institute of Emergency Aid imeni Sklifosovskiy were presented in a report made by the chief surgeon of this institute, Professor B. A. Petrov, and by G. D. Chesnokova, Candidate of Medical Sciences.

In a report given by N. N. Priorov, Active Member, Academy of Medical Sciences USSR, the principal problems of the pathology of trauma produced by an electrical current were discussed.

N. L. Gurvich, Candidate of Medical Sciences, discussed in his report his theory concerning the origin of heart fibrillations, which represent the most frequent [immediate] cause of death produced by trauma which is caused by an electrical current. On the basis of his investigations, Gurvich has evolved a method of stopping heart fibrillations by a condenser discharge without opening up the chest. Of considerable interest was a paper by Professor I. T. Mil'chenko and N. P. Kalashnikova on the application of intra-arterial blood transfusion under pressure in the obstetric-gynecological clinic. On the basis of experience acquired at the obstetrical institutions of the city of Kuybyshev, the authors of this paper stated that intra-arterial blood transfusion under pressure, in combination with subsequent intravenous blood transfusion, produces a rapid beneficial effect in the treatment of terminal conditions encountered in obstetric-gynecological practice.

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In a report made by L. O. Ketler, physician at a rayon hospital in Kalinin Oblast, it was pointed out that a very effective method for combating acute shock, blood losses, or rapidly progressing intoxication of the organism is furnished by the method of intra-arterial blood transfusion under pressure. The simplicity of the equipment for intra-arterial transfusion under pressure and the availability of this equipment under conditions existing at a rayon hospital, or even at a district hospital, was especially emphasized in Ketler's report.

The effectiveness of the application of respirators of the pneumatic-cuff type in cases of poliomyelitis accompanied by paralysis of the respiratory musculature was mentioned in a report given by Ye. V. Gotovtseva.

The work of the conference was conducted under conditions which encouraged criticism and the free exchange of ideas. The great number of people who participated in the discussion of reports indicates this. Particularly lively was a discussion of the duration of the period of clinical death during which complete restoration of vital functions is still possible; on the mechanism of the restoration of cardiac activity and, in connection with this, on the method of introducing blood into an artery; and on the necessity of producing equipment for artificial respiration in the shortest possible time. Both in the reports and in the discussions, the effectiveness of the method of resuscitation developed at the Laboratory of Experimental Physiology on the Resuscitation of Organisms, Academy of Medical Sciences USSR, was confirmed.

The work of the conference has shown that development of the problem of the restoration of vital functions of the organism is carried out on the basis of advanced Michurin biology and also from the standpoint of Pavlov's nervism.

It follows from the data presented at the conference that the problem of the restoration of vital functions is being investigated in close correlation with practical medical work. Up to the time when the conference was held, intra-arterial transfusion of blood had been carried out at USSR medical institutions on 1,714 patients who were in a state of acute shock, agony, or clinical death. As a result of the application of intra-arterial blood transfusion, 797 patients were saved.

Additional information on the successful application of intra-arterial blood transfusion in the cases of 82 patients was presented at the conference.

An instruction which had been confirmed by the Deputy Minister of Public Health USSR was communicated to the participants at the conference. This instruction dealt with introducing, into therapeutic practice, the method of restoring vital functions which has been developed at the Laboratory of Experimental Physiology for the Resuscitation of Organisms, Academy of Medical Sciences USSR.

During the discussion of reports, some shortcomings in connection with the development of work on this problem and the introduction of the results of this work into practical medicine were brought out. Some of these shortcomings are the inadequate scope of investigations on the dynamics of the restoration and extinction of nerve activity, the fact that some institutions do not work on problems of resuscitation (for instance, the laboratory directed by S. S. Bryukhonenko), lack of a sufficient theoretical basis for work on problems pertaining to the resuscitation of organisms, and inadequate attention paid by the Ministry of Public Health USSR, the Academy of Medical Sciences USSR, and the Laboratory of Experimental Physiology for the Resuscitation of Organisms, Academy of Medical Sciences USSR, to the problem of mass production, in the shortest possible time, of equipment for artificial respiration to be used at medical institutions.

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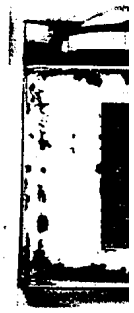

The resolution passed by the conference stated that it is necessary to expand intensive theoretical work on the problem of the restoration of vital functions of the organism on the basis of Pavlovian physiology and that it is furthermore necessary to achieve extensive introduction of the methods that have been developed in this field into the practice of Soviet public-health protection, in close collaboration with clinicists.

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